

Chapter VII – Cross-Cutting Policies

Option 22: Undertake a Broad-Based Energy Efficiency Public Education Campaign

Background

One of the barriers to widespread adoption of energy conservation and energy efficiency is lack of public awareness and understanding about energy efficient technologies, appliances, building practices and behaviors, and the associated benefits of choosing efficient technologies. A general energy efficiency education campaign will help inform consumer decision-making, and will lead to behavior changes, conservation measures, and support the increased adoption of energy-efficient products and building practices.

Currently, Utah consumers receive information on available energy efficiency programs and products via communications from utility companies, web-based resources, emails, community events/workshops, in-store displays, and infrequent media coverage. While the aforementioned mechanisms have increased the adoption of energy efficiency over the past decade, the majority of Utahns still remain largely uninformed about energy efficiency. A comprehensive educational effort is necessary to reach this untapped population.

Utah's PowerForward program is an example of an effective broad-based education campaign geared towards reducing summer peak electricity usage through voluntary conservation measures via targeted education and outreach. PowerForward is a \$60,000¹⁹² campaign sponsored by the Utah Department of Environmental Quality and Utah's electric utilities.¹⁹³ At the heart of the campaign is the PowerForward alert system, which notifies Utah citizens and businesses on days when additional electricity conservation measures are needed. Preliminary estimates show that from June 1 to September 15, 2006, these alerts helped save an estimated 60-100 MW of electricity demand during peak hours (12:00 p.m. - 8:00 p.m.).¹⁹⁴ The principal modes of communication for these alerts are: email announcements, website updates, and daily news updates.

Albeit successful, the PowerForward Campaign is limited in its reach and scope because the campaign 1) runs only during the summer months, 2) focuses only on electricity conservation during peak hours on a limited number of days, and 3) emphasizes immediate conservation measures versus long-term efficiency efforts and/or changes in energy habits and usage patterns.

¹⁹² Consultation with Glade Sowards, Energy Program Coordinator, Utah Division of Air Quality, Department of Environmental Quality. March 9, 2007.

¹⁹³ Power Forward, URL: <http://www.powerforward.utah.gov/about.htm>.

¹⁹⁴ See Reference 192.

Specific Energy Efficiency Proposal

We recommend that the state and other sponsors implement a multi-year energy efficiency and conservation education program at a funding level of \$500,000 per year. Continuing this funding through 2015 would require a total of \$4 million (undiscounted). This funding would cover the costs of a campaign consultant, marketing, advertising, and outreach materials. Ideally, this program should have multiple partners and funding sources, as is the case with the PowerForward campaign, and should be designed to withstand changes in political leadership. The campaign could include the following elements:

- A consistent message from a broad array of leaders, including elected officials such as the Governor and mayors, utility executives, and religious leaders;
- Provide simple action items for consumers explaining what specific steps they can take to become more energy efficient;
- Build off of existing efforts, partnerships, state, and utility efforts;
- Involve all state utility providers, including municipal utilities and rural co-ops;
- Involve the state's key media and advertising outlets: local television, commercial radio, public radio, newspapers, billboard agencies, etc.;
- Coordinate campaign messaging and communication efforts with existing utility energy efficiency/DSM incentive programs and national campaigns (i.e. ENERGY STAR campaign), where applicable;
- Develop a clear, recognizable image and brand name/slogan, similar to "Slow the Flow" or "PowerForward";
- Incorporate and utilize ENERGY STAR messaging, resources, and tools;
- Identify clear savings goals and metrics to measure savings; and
- Regular reporting on campaign progress.

Energy Savings

Education campaigns in California, Texas, and elsewhere have been shown to produce lasting demand reductions. A recent report assumes that a short-term education campaign in Texas will produce 3 percent energy savings and 5 percent peak demand savings through behavior changes.¹⁹⁵

It is assumed that a general energy efficiency education campaign in Utah will gradually build up to 2 percent electricity and natural gas savings per year by 2012, and remain at this level through 2020. We assume the savings occur in the residential and commercial sectors, but not in the industrial sector. It should be possible to achieve this level of savings through behavior and lifestyle changes such as reducing unnecessary operation of lights and personal computers and lower/higher thermostat settings in the winter/summer. The savings estimates are conservative in order to avoid double counting

¹⁹⁵ R.N. Elliott, et. al. 2007. *Potential for Energy Efficiency, Demand Response, and Onsite Renewable Energy to Meet Texas's Growing Electricity Needs*. Washington, DC: American Council for an Energy Efficient Economy, March, pp. 26-27. <http://aceee.org/pubs/e073.pdf>.

of savings achieved through DSM programs or other policy options that result in technological changes to save energy. However, the general education campaign should help to increase participation in and energy savings from these other efforts.

Table 29 shows the estimated energy savings in 2010, 2015, and 2020 under two scenarios. The first is based on achieving the 2 percent savings by 2012 and thereafter without accounting for the effects of other options in this strategy. The second scenario takes into account the other options; i.e., savings are estimated using a lower base level of energy consumption. In this second scenario, the savings reach 393 GWh of electricity and 1.75 million decatherms of natural gas per year by 2015.

Table 29 – Projected Electricity and Natural Gas Savings from a Broad-based Energy Efficiency Education Campaign

Scenario	Electricity Savings (GWh per year)			Natural Gas Savings (million decatherms per year)		
	2010	2015	2020	2010	2015	2020
Base case energy use forecast	242	476	561	1.14	2.02	2.14
Adjusted energy use forecast	226	393	420	1.09	1.75	1.69

Cost and Cost Effectiveness

The overall cost of developing and implementing a multi-year energy efficiency and conservation education program would be approximately \$4 million through 2015, and \$6.5 million through 2020. We estimate annual energy bill savings of about \$34 million in 2015 in the base energy use scenario and \$29 million in 2015 in the adjusted energy use scenario. The total energy bill savings during 2008-2015 under the first scenario is about \$209 million and under the second scenario about \$186 million (discounted net present value basis). Since we assume these savings can be realized through behavioral and lifestyle changes alone, no monetary costs are included for energy efficiency measures.

Environmental and Social Benefits

Implementing a comprehensive education campaign will help increase the adoption of energy efficiency measures and conservation techniques, providing net environmental and social benefits to Utah. Table 30 estimates the emissions reductions for the two energy savings scenarios outlined above.

Table 30 – Estimated Emissions Reduction from a Broad-based Energy Efficiency Education Campaign

Pollutant	Avoided Emissions (base case energy savings)		Avoided Emissions (adjusted energy savings)	
	2015	2020	2015	2020
Carbon dioxide (thousand metric tons)	319	376	264	282
SO ₂ (short tons)	21.4	25.2	17.7	18.9
NO _x (short tons)	133.2	157.0	110.0	117.7
Mercury (pounds)	1.9	2.2	1.6	1.7

Political and Other Considerations

Creating and implementing a successful energy efficiency education program will require collaboration, cooperation, and resources from all involved stakeholders. One challenge will be getting municipal utilities and rural electric co-ops to participate in such an effort given their limited budgets for education and outreach. Additionally, tracking and reporting specific savings associated with behavior changes is difficult to accomplish. While it is not politically controversial, securing adequate resources will be necessary to make this effort a success.

Priority

This option should lead to non-trivial energy savings as a result of behavior changes that cost little or nothing to implement. In addition, this option is a foundation activity that will contribute to the success of other efforts such as utility DSM programs. For these reasons, we recommend that it be viewed by the Governor, Legislature, and PSC as a **high priority**.

Case Study 10:

Public Education Campaign: Slow the Flow

Utah is the second driest state in the nation, but its residents consume large amounts of water. As water purveyors began looking at growth projections and how to meet future demands, the state mandated that regional or local water agency create and implement water conservation plans.

As part of their water conservation plan, the Jordan Valley Water Conservancy District (JVWCD) earmarked funds for a public outreach campaign. A water conservation program entitled "Slow the Flow: Save H₂O" was created, which was used across all media channels. In 2001, Governor Leavitt created the Governor's

Water Conservation Team, which includes a representative from each of the state's five major water conservancy districts, Utah Division of Water Resources, and Rural Water Association of Utah. Slow the Flow was incorporated as the main component of the Team's conservation efforts. Since the program's inception, dozens of press events, editorial board tours, media interviews, have been held.

The scope of the statewide Slow the Flow campaign has been primarily promotional. The funds contributed to date from participants in the Water Conservation Team, about \$1.5 million, have been used towards television and radio spots, print advertising, community outreach, and promotional items.

The statewide education program has been a success with estimated water savings of 2 percent in 2001, 8 percent in 2002, and 4 percent in 2003. Awareness of the Slow the Flow campaign is very high, and is judged to be effective.

Quick Facts

Total Project Cost: \$1.5 million during 2001-2006

Total Cost Savings: Not available

Total Water Savings to Date: Approximately 13 billion gallons

Highlights:

- Water conservation is now one of the top issues recognized statewide
- The vast majority of Utahns have heard of the Slow the Flow campaign, and most of the population report acting on its message

Source: Jordan Valley Water Conservation District, and State Division of Water Resources, 2007

Option 23: Increase Energy Efficiency Expertise through Training and Certification

Background

Investments in energy efficiency not only save energy and money, but also create new economic development and new job opportunities. Currently in Utah and across much of the nation, there is a shortage of trained energy efficiency professionals for performing energy audits, retrofits, and implementing energy efficiency programs. What's more, often energy professionals are not fully aware of the benefits of certain energy-efficient technologies, and/or there is a disincentive for them to promote these products because of lower profit margins and higher risk of call-backs. For example, the majority of HVAC installers and dealers in Utah encourage the purchase of central air conditioning as a replacement for outdated evaporative cooling technologies; newer evaporative cooling technologies are rarely promoted by HVAC businesses, despite their energy saving benefits.

Lack of energy efficiency expertise is a particular challenge outside of the Salt Lake valley. In rural areas and areas with small populations, utilities have found it challenging to attract trade allies and to promote energy-efficient products. For example, Rocky Mountain Power (RMP) and Utah Clean Energy partnered with the City of Moab and Moab businesses to launch the Moab Energy Efficiency Challenge in 2005. The goal was to increase business participation in RMP's FinAnswer and FinAnswer Express Programs. However, the partners found it difficult to attract local lighting and HVAC contractors to participate in the program because they lacked awareness of and interest in marketing and installing energy-efficient products.

Across the country, numerous universities, colleges, and technical schools are teaching energy efficiency courses and training students and professionals. For example, Northampton Community College (NCC) in Bethlehem, PA offers an Energy Efficiency Specialist program, while Lane Community College in Portland, OR operates an Energy Management Technician program. NCC collaborated with the U.S. Department of Energy to create the curriculum for a community college-based energy efficiency program that can be used as a national model and replicated at community colleges and vocational schools nationwide.¹⁹⁶ The curriculum is available free of charge to other schools interested in implementing similar programs. The diploma program, offered in response to industry demand for energy efficiency specialists, covers energy usage in a manufacturing setting; applications of energy efficient technologies; energy assessment methodologies; tools available to assess energy systems, such as DOE's Best Practices tools; and energy-economic analysis.

Lane Community College has offered an Energy Management Technician program since 1980. The program trains students to be energy efficiency technicians and energy

¹⁹⁶ US DOE, Energy Efficiency and Renewable Energy, Industrial Technologies Program, "Energy Efficiency Tools go to School." URL: http://www.eere.energy.gov/industry/bestpractices/energymatters/articles.cfm/article_id=44.

analysts in the residential and commercial sectors. The program currently operates on an annual budget of \$250,000, which covers one full-time faculty member, 8 adjunct professors, and 3 support staff. Approximately 25 students graduate from the program each year. The program also offers several professional development workshops throughout the year to train construction and building trade professionals on matters related to energy and energy efficiency.¹⁹⁷

The Building Operators Training and Certification program (BOC) is another well-proven energy efficiency training program for commercial and industrial building operators and facility managers. It features a series of one- and two-day courses, followed by students taking a test and receiving a certificate if the test is passed. Surveys have shown that 75-85 percent of students report taking some actions that saved energy and money after completing this training and certification program.¹⁹⁸

As Utah moves towards the goal of a 20 percent increase in energy efficiency by 2015, there will undoubtedly be a growing demand for workers who can market, install, operate, and service energy-efficient lighting, HVAC equipment, refrigeration systems, energy management, and other systems used in businesses and industries. There will also be a need for skilled professionals to staff utility DSM and other programs, design and construct efficient new buildings, and perform energy audits and retrofits on existing buildings.

Specific Energy Efficiency Proposal

In order to meet the demand for energy efficiency professionals, we recommend funding energy efficiency training and certification programs in one or more of Utah's universities, community colleges, and technical schools. It is worth noting that the Governor's former Energy Policy Advisor made the following recommendation in her 2006 *Energy Advisor Report to the Utah Legislature: Energy Policy and Development in Utah*:

It is recommended that in order to remain competitive in the region, be progressive in matters of conservation and efficiency, and avoid increased labor shortages, the legislature earmark funding for education and training in the energy sectors. Funding can be directed through the Department of Workforce Services, the office of the Energy Advisor, the Governor's Office of Economic Development, or through higher education appropriations. Funding could come from a portion of the severance tax, bonus payments, royalties paid to the state from minerals' extraction, or other available sources that stem from the energy boom.

¹⁹⁷ Personal communication with Roger Ebbage, Program Advisor, Energy Management Technician, Lane Community College, March 9, 2007.

¹⁹⁸ For more information on the BOC program, see www.theboc.info. Also, McRae, M.R. and B. Mayo. 2006. "What Building Operators Are Saying About the BOC Training." *Proceedings of the 2006 ACEEE Summer Study on Energy Efficiency in Buildings*. Washington, DC: American Council for an Energy-Efficient Economy.

It is also recommended that the Energy Policy (Utah Code Section 63-53b-301) be modified as follows to reflect that energy education of all types is a priority in this State:

(X). Utah will promote training and education programs that focus on energy related matters, including such issues as conversation, energy efficiency, and workforce development.¹⁹⁹

We recommend a total budget of approximately \$500,000 per year for energy efficiency courses and training, relying primarily on existing curriculum such as the BOC program and the community college courses mentioned above. Simultaneously, the state could partner with utilities and other organizations such as trade groups to train existing workers in areas of concern. In fact, Rocky Mountain Power periodically hosts various training sessions to generate “trade allies” for their demand-side management programs. Additionally, Utah could reinstate funding for the University of Utah’s Intermountain Industrial Assessment Center (IIAC), which was previously funded by the Department of Energy. Due to reallocation of national funds, the IIAC was terminated in 2006. The IIAC trained students in energy auditing and provided free on-site energy efficiency audits to small and medium-size industries in the state.²⁰⁰ Reinstating the IIAC with state and/or private money would certainly prove beneficial to Utah’s industries and to energy efficiency efforts in general.

Energy Savings

We do not attribute any direct energy savings to this option. Implementing training and certification will enhance the effectiveness of other options in the strategy.

Cost and Cost Effectiveness

Given that energy efficiency curriculum has already been created and successfully implemented elsewhere, the cost to tailor these curriculum to the needs of Utah would be minimal. Regarding training itself, we suggest funding one community college or vocational school to run an energy efficiency training program along the lines discussed above; implementing the BOC program; and reinstating the IIAC program. Combined, the cost should be on the order of \$500,000 per year.

The three programs combined could potentially train 50-75 students per year. The overall benefit of increasing the number of trained energy efficiency professionals in the state is not easily quantifiable. But it will no doubt indirectly contribute to energy savings as these students obtain jobs in businesses and industries in the state, including utilities, engineering firms, and energy service companies.

¹⁹⁹ L. Nelson, *Energy Advisor Report to the Utah Legislature: Energy Policy and Development in Utah*. October 18, 2006.

²⁰⁰ Utah Industrial Assessment Center, URL: <http://web.utah.edu/iac/> and <http://www.umpic.utah.edu/iac.html>.

Environmental and Social Benefits

The environmental and social benefits resulting from this option are difficult to quantify, but implementing a successful education and training program will bolster the success of the other policies outlined in this strategy. Moreover, education and training will improve the skills of Utah's workforce and spur economic development.

Political and Other Considerations

Obtaining state funding for energy efficiency training is challenging because it competes with other funding priorities. Additionally, it may be difficult to demonstrate the need for such training because energy management expertise is dispersed across a wide range of businesses and sectors. But procuring adequate funding is critical to the success of this option. In that regard, it may be possible to obtain some of the funding from charitable foundations and/or corporate donors who understand the importance and value of energy efficiency training.

Priority

Even though it is difficult if not impossible to quantify the benefits of this option, we believe it is critical activity for achieving the Governor's energy efficiency goal. We recommend it be pursued as a **medium priority**.